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*Original Article***Quality of life and OHRQoL in head and neck cancer patients in Kerman, Iran**

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**Abstract**

**BACKGROUND AND AIM:** Head and neck cancer is one of the six most prevalent neoplasms worldwide. Regardless of tumor site, deterioration of basic functions affecting head and neck areas are perceived and affect patients' lives. The aim of this study was to evaluate quality of life (Short Form) and oral health related quality of life (OHIP-14) in patients with head and neck cancer.

**METHODS:** This study was conducted on 42 patients being treated for head and neck cancer. Data collected from the survey included demographic (sex, age, and educational level), quality of life (QoL), and Oral Health Related Quality of Life (OHRQoL), which were, respectively, measured by short form-36 and OHIP-14 questionnaire. Cancer measurements were collected from the patient's hospital records. ANOVA and t-tests were used to determine the association between QoL scores and the variables.

**RESULTS:** 83.3% of the participants were men and 16.7% were women. Their mean age was  $59.39 \pm 12.5$  years. 33.3% of the participants had oral cancer. 54.8% of patients had stage III cancer. The mean score of OHIP-14 was  $21.4 \pm 10.11$ . There was a significant correlation between OHIP-14 and site of cancer, and dose of radiation ( $P = 0.020$  and  $P = 0.009$ , respectively). The best score of SF-36 was in social function ( $55.11 \pm 30.9$ ) and the worst score of SF-36 was in vitality domain ( $29.76 \pm 9.67$ ). There was a significant correlation between physical function, vitality and social activity with OHIP-14 ( $P = 0.020$ ,  $P = 0.011$ ,  $P = 0.009$ , respectively).

**CONCLUSIONS:** The QoL scores in Kerman like the other studies were low. Head and neck cancer can have a negative impact on QoL. Further research is recommended.

**KEY WORDS:** Short Form-36 (SF-36), Oral Health Impact Profile-14 (OHIP-14), Head and Neck Cancer

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Oral cancer is the sixth most common neoplasm in the world; approximately 900000 cases of this disease are identified every year.<sup>1</sup> Epidemiologic studies show an increase in oral cancer incidence in the general population and among young people.<sup>2</sup> Despite the progression in treatment 5-years survival rate is between 50-60%.<sup>2-5</sup> Oral health related quality of life is the self-evaluation of functional, psychological, sociological conditions that are affected by oral health

condition.<sup>6</sup> One of the most important effects of treatment is quality of life improvement.<sup>2</sup> Ogama et al. showed radiation causes xerostomia and mucositis that can reduce the quality of life of patients.<sup>7</sup> Hanna et al. evaluated the quality of life of patients who had larynx carcinoma and were treated in different ways. They showed that the patients treated by surgery and radiotherapy had more problems in social functioning than the chemoradiation group. Patients treated by surgery had a significantly higher number of

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sensorial complications, and a higher number of xerostomia was reported in those treated by chemotherapy.<sup>8</sup>

Andrade et al. showed that patients with larger tumors and tumors in the posterior of the mouth had significantly lower quality of life and their chewing ability was limited.<sup>9</sup>

Mochizuki et al. showed that psychological status and quality of life were reduced in patients with oral cancer.<sup>10</sup> Kakoei et al. showed xerostomia, due to radiotherapy, plays an important role in worsening QoL among patients who undergo radiotherapy for head and neck cancer.<sup>11</sup>

Since similar research has not been done in Iran, this study planned to assess oral health related quality of life (OHRQoL) and quality of life (SF-36) in oral cancer patients referred to the Oncology Center at the University of Medical Sciences, Kerman, Iran, which is in fact the only oncology center in the Kerman province.

## Methods

This descriptive cross-sectional study was conducted on 42 patients with head and neck cancer referred to the Oncology Center of Kerman University of Medical Sciences (Shafa Hospital). The participants were selected with simple sampling method. The aim of this project was explained to patients and then after obtaining written consents from them, they were enrolled into the study. Data collection was obtained from questionnaires consisting of 3 parts. The first part consisted of demographic characteristics and cancer information including histological type, location, clinical staging, method of treatment, and dose of radiation. The second part was the Persian version of the Oral Health Impact Profile-14 (OHIP-14) questionnaire. Validity and reliability of this questionnaire were assessed by Mirzadeh.<sup>12</sup> OHIP-14 consist of 14 questions about patients' problems due to their teeth or dentures. Answers were measured by Likert scale (never (0), seldom (1), occasionally (2), always (3), and every time (4)), so the rate of numbers are between 0-56. Part 3 was the

Persian version of the quality of life (SF-36) questionnaire that consists of 8 domains of general health, the role of physical limitations, vitality, pain, social functioning, general mental health, and the role emotional limitations. Answers were measured from 0-100 in each domain, higher marks mean better quality of life. Reliability of this questionnaire was 85% based on alfa chronbach.<sup>13</sup> Validity and reliability of this questionnaire were assessed by Montazeri et al.<sup>14</sup> Four weeks after completion of radiotherapy and radiotherapy-induced improvement of acute symptoms, the patients were questioned. In order to complete the questionnaire, personal information was completed by the patient and disease characteristics, including location, type and tumor staging was extracted from patients' records and treatment records by the radiotherapist.

In cases where the patient was low-literate or illiterate questions were read for the patient by the researcher who tried to read all questions in an identical manner in order to prevent any prejudice or from guiding the patient to give a specific answer. After collecting the data, they were entered into the computer by using SPSS software version 16 and analyzed by t-test, ANOVA and LSD tests. The proposal of this study was approved under the ethical code K/89/37 by Kerman University of Medical Sciences.

## Results

In this study, 42 patients were examined; 35 men (83.3%) and 7 women (16.7%). Their mean age was  $56.39 \pm 12.15$  years. 52.4% had diploma and lower education. Radiotherapy dose in 66.6% was 70 GY. 40.5% had larynx cancer, and 33.3% had mouth cancer, and 54.8% of the cases had stage III cancer (Table1).

The mean and standard deviation score of oral health-related quality of life was  $21.4 \pm 10.11$ , with minimum 3 and maximum 41 points. The most important problem was changes in the patients' sense of taste.

Oral health-related quality of life index score based on individual characteristics and

Table 1. Demographic variables and OHIP-14

Variables		mean $\pm$ SD (OHIP-14)	Number (%)	Test result (P value)
Sex	Male	20.57 (9.98)	35 (83.3)	NS*
	Female	25.71 (10.45)	7 (16.7)	
Education level	Illiterate	21.25 (10.16)	12 (28.6)	
	Diploma and below	22.00 (10.07)	22 (52.4)	NS
	University	21.43 (11.39)	8 (19.0)	
Tumor site	Nasopharynx	10.00 (4.24)	4 (9.5)	P < 0.050
	Larynx	22.35 (9.53)	17 (40.5)	
	Mouth	26.14 (6.92)	14 (33.3)	
	Neck	21.43 (13.11)	7 (16.7)	
Clinical stage	I	16.00 (0.00)	1 (2.4)	NS
	II	20.36 (10.15)	11 (26.2)	
	III	22.52 (10.27)	23 (54.8)	
	VI	20.29 (11.28)	7 (16.7)	
Treatment dose	60	29.56 (7.78)	9 (21.4)	P < 0.050
	66	16.00 (9.19)	5 (11.9)	
	70	19.79 (9.73)	28 (66.6)	

\* Not Significant

type of disease were compared and results in tumor site and dose of therapy showed a significant difference.

Additional tests showed quality of life of patients with nasopharyngeal tumors was higher in comparison with patients who had tumor in the larynx and mouth ( $P < 0.050$ ), but it was similar to patients with cervical masses.

The patients who were irradiated with 60 Gy had the lowest quality of life ( $P < 0.050$ ). Calculated scores for quality of life domains

based on the questionnaire SF-36 showed that the highest quality of life was in social functioning and physical functioning and the lowest was in vitality (Figure 1).

## Discussion

In this study, the mean of OHIP-14 was  $21.4 \pm 10.11$ . McMillan showed that the mean score of OHIP-14 was higher for patients with newly diagnosed nasopharyngeal carcinoma in comparison to those who had finished their radiotherapy treatment.<sup>15</sup>

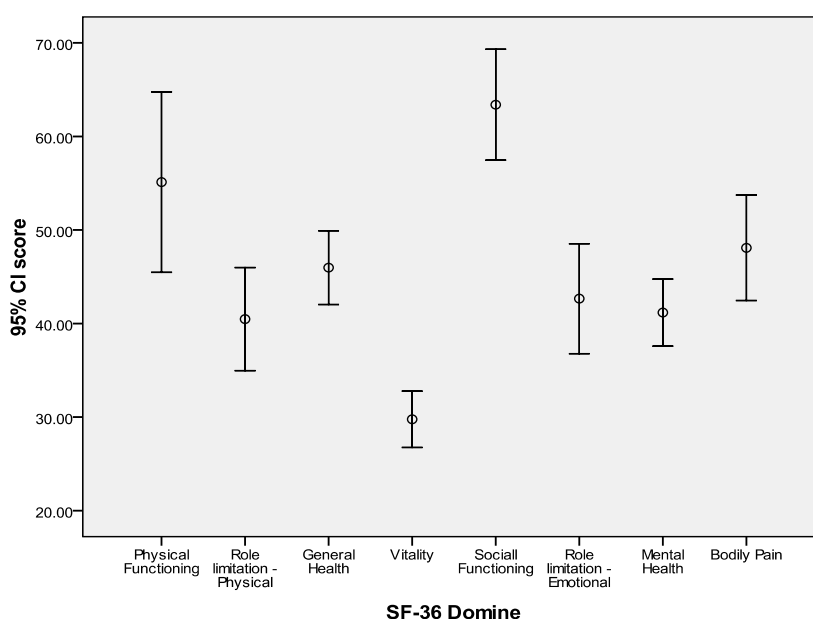


Figure 1. Mean of QoL in different domains of SF-36

In this study the relationship between OHRQoL and the location and staging of tumors was statistically significant. Average score of those who had oral tumors was lower than other people. The most important problem, which was change in their sense of taste, can be related to the decrease in saliva.

Alicikus et al., in a cross-sectional study of QOL in patients with head and neck cancer who had radiotherapy with or without chemotherapy, demonstrated that the tumor site and its clinical staging was significantly associated with patients' quality of life.<sup>16</sup> Fang et al. showed that patients who had tumor in stage 4 QoL had lower quality of life than patients in stage 1,2 and 3 QoL, and this is consistent with the results of the present study.<sup>17</sup>

In this study, the mean OHRQoL score was  $20.57 \pm 9.97$  in men and  $26.5 \pm 11.22$  in women. T-test showed no significant association between sex and OHRQoL. Caglayan et al. showed no statistical relationship between sex and OHIP-14, which is in agreement with the results of our study.<sup>18</sup>

The results of this study showed the lowest score of SF was in vitality (29.76 from 100), this is incompatible with the results of the study by Herce et al. (2009).<sup>19</sup> This difference can be explained by the social and cultural differences of the two studies.

Fang et al. showed that the average score of the 8 domains of SF-36 was significantly lower in patients with oral cancer than other patients.<sup>17</sup> Herce et al. (2009) showed that patients with oral cancer had lower social activity and higher level of pain than the control group.<sup>19</sup>

Although Hanna et al. showed that there was no difference in SF-36 of patients treated by total laryngectomy, and those with chemoradiation. Patients treated with chemoradiotherapy had fewer problems in social functioning than those treated by surgery or radiotherapy.<sup>8</sup>

Herce et al. (2007) showed no difference between quality of life of patients with oral cancer and ordinary people. However, they showed a small difference in social functioning and emotional domains of patients with oral cancer and ordinary people.<sup>20</sup> Karvonen et al. showed that the physical aspect of SF-36 was associated with the survival rate of patients with head and neck cancer.<sup>21</sup> It seems that the concept of quality of life varies due to differences in lifestyle and expectations of patients in different cultures.

In the present study, the OHIP-14 was correlated with the dose of treatment. Pow et al. (2006) also showed that patients with nasopharyngeal carcinoma and undergoing Intensity-Modulated Radiotherapy (IMRT) had higher quality of life than those treated with conventional radiation.<sup>22</sup> Kakoei et al. reported that decrease in flow of saliva in patient who undergo radiotherapy causes a decrease in QoL.<sup>11</sup> Kanatas et al. argue that the quality of life questionnaire should be used as an additional tool for giving information to patients, identifying their problems, and giving them the opportunity to solve their problem under the supervision of a specialist.<sup>23</sup>

## Conclusion

Quality of life in patients with head and neck cancer in Kerman, like the other studies, is low. Quality of life can be a valuable tool for screening and identifying patients with low quality of life. This identified group must be followed in order to detect early recurrence of disease and use appropriate treatment for improving their survival rate. We also suggest that patients who are treated for head and neck cancer be trained by nurses and social workers to improve their life quality.

## Conflict of Interest

Authors have no conflict of interest.

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